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# **WATER SUPPLY OUTLOOK FOR MONTANA**



**U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Collaborating with

**MONTANA AGRICULTURAL EXPERIMENT STATION**

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF  
**FEB. 1, 1976**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent of surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SURVEYOR ENROUTE TO THE MT. BALDY ARIZONA SNOW COURSE  
SCS PHOTO AZ-5460

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 111, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bazeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



# ***WATER SUPPLY OUTLOOK FOR MONTANA***

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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# MONTANA WATER SUPPLY OUTLOOK

February 1, 1976

\* \* \* \* \*

\* The mountain snowpack is quite variable. In general, \*  
\* low elevations have a lesser snow cover, percentage- \*  
\* wise, than higher elevations. This is a result of \*  
\* both storm deposition and melt from warm temperatures. \*  
\* A few snow courses in the headwaters of the Clark Fork \*  
\* and Flint Creek have record water content while some \*  
\* portions of the Yellowstone River headwaters have near \*  
\* record amounts. Portions of the Kootenai, Flathead, \*  
\* and Marias River systems have below average snow accum- \*  
\* ulation. \*  
\* \*  
\* Streamflow is forecast to be below average in the Marias \*  
\* and Milk River drainages, east of the divide, and near \*  
\* to below average in the Kootenai, Flathead, Sun River \*  
\* area. Good soil moisture in the mountain watersheds \*  
\* will help runoff condition in the low snowpack areas. \*  
\* \*  
\* Much above average streamflow is forecast in the Upper \*  
\* Clark Fork area, west of the divide, and in portions of \*  
\* the Jefferson River drainage and the Yellowstone River \*  
\* system. Other areas should have above average runoff. \*  
\* \* \* \* \*

## COLUMBIA RIVER DRAINAGE

Snow - Snow water content varies from near record amounts in the Upper Clark Fork to below average in portions of the Kootenai and Flathead drainages. Some melt has occurred at lower elevations. A heavy snowpack is present in the higher elevations of the Clark Fork River headwaters.

Streamflow - Spring and summer runoff is forecast to be a little below to near average in the Kootenai, Flathead, and Lower Clark Fork River basins. Above average amounts of moisture are stored in the soil under the snowpack, and this will help increase the yield from the below average snow cover. Above average runoff is expected over most of the Bitterroot and Blackfoot River drainages. Above average runoff can be expected in the Upper Clark Fork basin.



## MISSOURI RIVER DRAINAGE

Snow - Snow cover is quite variable ranging from below average along the Montana-Idaho border in the Red Rock River drainage and in the Marias River headwaters to near record amounts along the Continental Divide in the vicinity of Butte. Most drainages have snow cover 10 to 20 percent above average.

Streamflow - Runoff during the spring and summer months is forecast 10 to 20 percent above average in most southern drainages. Near average flow is expected in the Sun River drainage while below average runoff is forecast in the Milk and Marias Rivers. Moisture stored in the soil under the snowpack is above average.

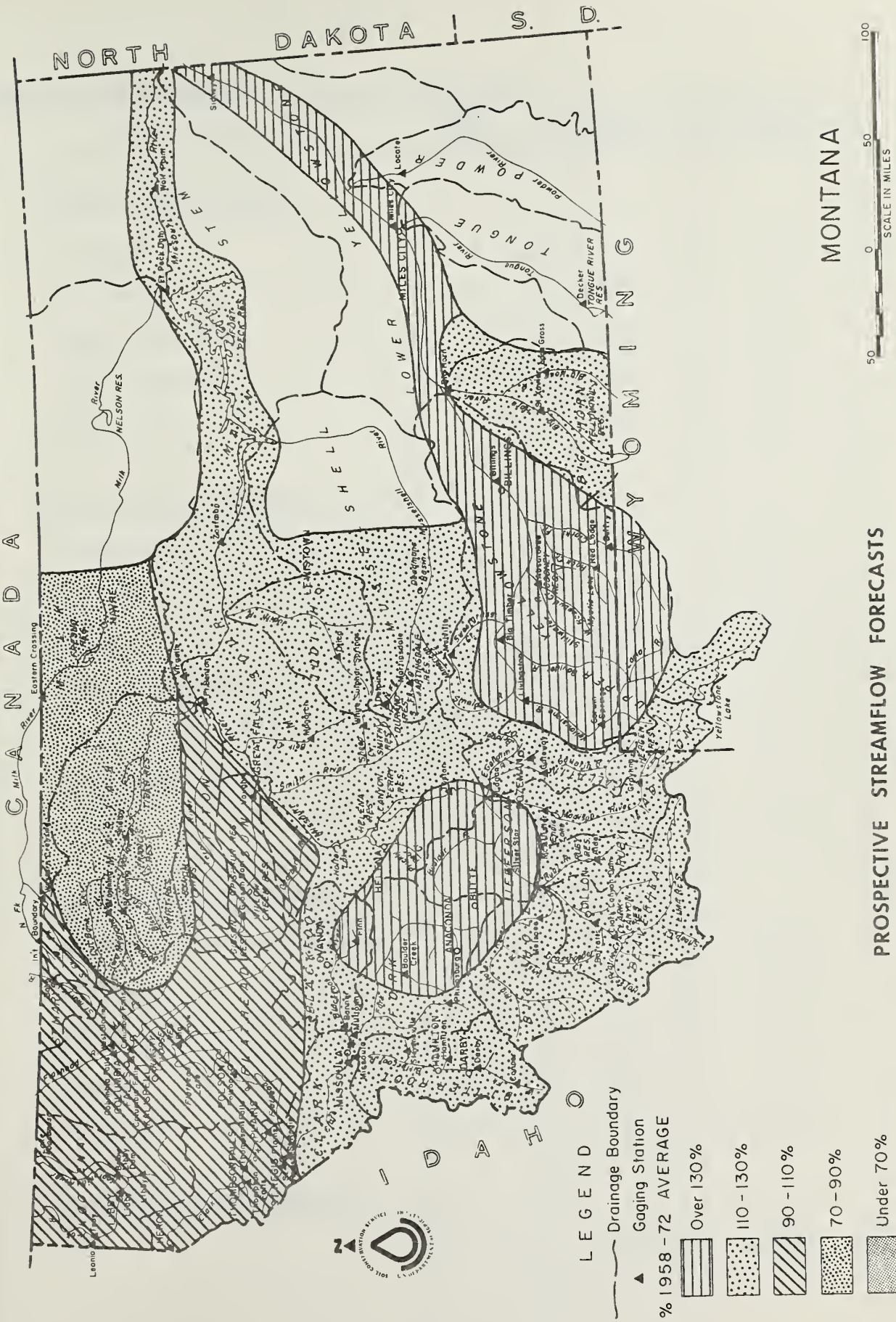
## YELLOWSTONE RIVER DRAINAGE

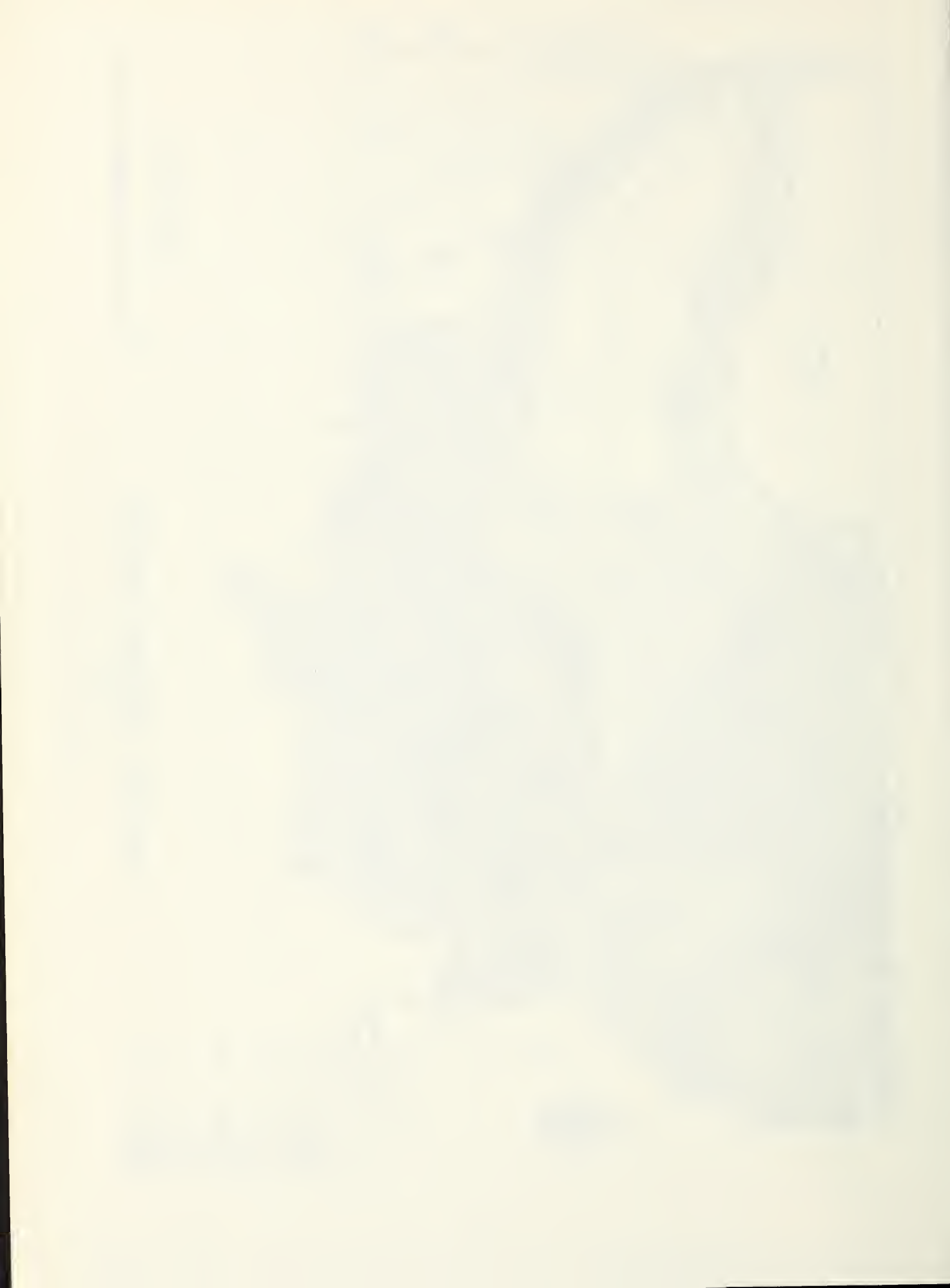
Snow - A heavy snowpack covers most of the Yellowstone headwaters with some snow courses having near record amounts of water equivalent. The entire basin shows about 25 percent more water content than normally expected on this date.

Streamflow - Spring and summer runoff should be well above average with most streams flowing in the 130 to 140 percent average range. Soils under the snowpack contain above average amounts of water.







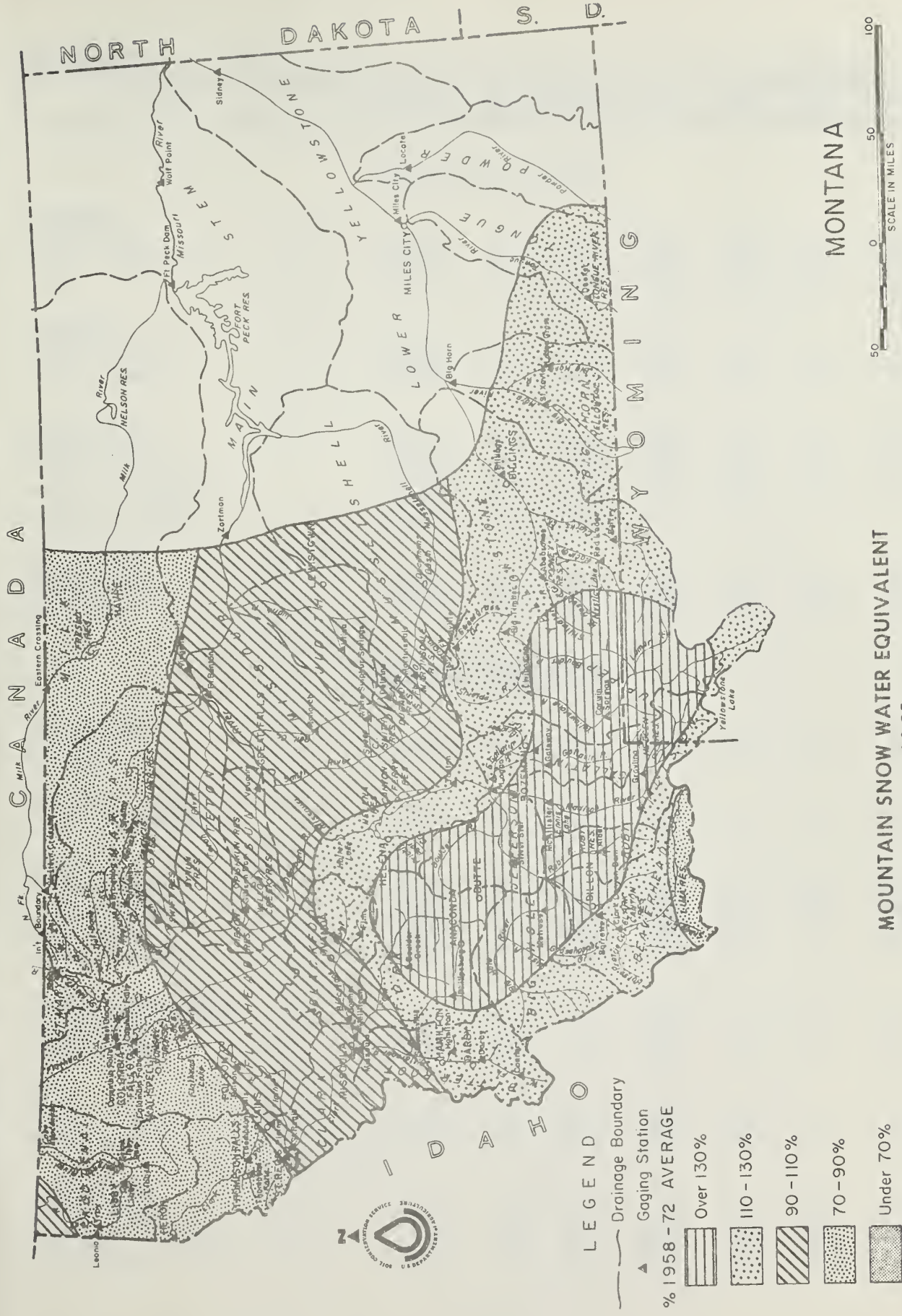


# SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average
<u>COLUMBIA RIVER DRAINAGE</u>			
Kootenai	8	91	83
Flathead	12	101	91
Upper Clark Fork	21	116	125
Lower Clark Fork	4	104	99
Bitterroot	6	107	121
<u>MISSOURI RIVER DRAINAGE</u>			
Jefferson	20	123	114
Madison	10	151	120
Gallatin	11	120	118
Missouri Main Stem	6	108	112
Judith-Musselshell	2	104	106
Marias-Teton-Sun	4	112	89
Milk	3	86	76
<u>YELLOWSTONE RIVER DRAINAGE</u>			
Yellowstone (above Bighorn)	14	147	126
Bighorn	33	101	123
Little Bighorn	7	96	127
Tongue	12	88	120
Powder	6	117	124
<u>SASKATCHEWAN RIVER DRAINAGE</u>			
Bow	4	126	114
-4-			







MONTANA

MOUNTAIN SNOW WATER EQUIVALENT  
AS OF

February 1, 1976



LEGEND  
— Drainage Boundary  
▲ Gaging Station

% 1958 - 72 AVERAGE

- Over 130%
- 110 - 130%
- 90 - 110%
- 70 - 90%
- Under 70%



# SOIL MOISTURE

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †

## COLUMBIA RIVER BASIN

<u>Kootenai</u>							
Baree Trail	3800	48	7.5	-	-	-	-
Murphy Lake R. S.	3000	48	22.6	2/01	19.5	19.0	19.4
Raven	3050	48	23.0	2/03	16.9	15.8	18.9

<u>Flathead</u>							
Desert Mountain	5600	54	8.4	1/30	8.7	5.5	7.0
Marias Pass	5250	54	6.5	1/21	6.2	3.9	5.1

<u>Clark Fork</u>							
Black Pine	7100	48	10.0	1/28	8.3	7.3	7.4
Lubrecht Forest	4100	48	26.8	2/02	23.8	15.0	15.2
Seeley Lake R. S.	4030	48	11.9	2/02	11.7	7.7	7.6
Skalkaho Summit	7260	48	10.8	-	-	-	-

<u>Bitterroot</u>							
Gibbons Pass	7100	48	7.1	1/28	5.9	3.4	4.8
Lolo Pass	5250	48	10.6	1/30	7.3	3.8	5.9

## MISSOURI RIVER BASIN

<u>Beaverhead</u>							
Lakeview	6700	48	15.3	1/30	10.9	8.2	9.0

<u>Madison</u>							
West Yellowstone	6700	48	6.5	1/30	1.9	1.7	2.6

<u>Gallatin</u>							
Bridger Bowl	7250	48	17.0	1/26	15.0	15.0	15.8
College Site No. 2	4856	54	17.7	1/30	16.8	15.2	13.2
Lick Creek	6860	48	18.8	1/29	14.1	-	16.5
Twenty-One Mile	7150	48	10.0	1/30	3.8	3.0	4.7

<u>Missouri Main Stem</u>							
Kings Hill	7420	48	11.8	1/28	7.7	7.1	6.9
Stemple Pass	6350	48	5.9	1/30	5.3	3.5	4.0

<u>Milk</u>							
Beaver Creek	3950	48	20.9	1/23	8.6	-	7.6
Rocky Boy	4700	36	10.1	1/26	8.5	8.2	7.2

<u>Yellowstone</u>							
Battle Ridge	6020	48	17.6	1/26	12.7	14.7	13.1
Northeast Entrance	7350	48	9.4	1/27	4.9	3.8	6.0
PMC Dryland	3700	48	20.7	2/02	5.9	6.4	-





# RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
<u>COLUMBIA RIVER BASIN</u>					
Kootenai	Koocanusa	5,694.0	2,450.0	2,145.0	-
Flathead	Hungry Horse	3,428.0	2,768.0	1,990.0	2,484.0
	Flathead Lake	1,791.0	1,249.0	1,085.0	1,246.0
	Camas (4)	45.2	17.5	17.8	23.0
	Mission Valley (8)	100.3	57.1	30.4	33.2
Clark Fork	Georgetown Lake	31.0	29.6	25.0	27.0
	Lower Willow Creek	4.6	3.5	1.3	1.2
	Nevada Creek	12.6	9.5	-	4.8
	Noxon Rapids	334.6	303.5	313.1	320.8
Bitterroot	Como	34.9	25.6	-	11.0
	Painted Rocks	31.7	27.1	0.0	22.0

## MISSOURI RIVER BASIN

Beaverhead	Clark Canyon	328.9	153.0	107.5	140.6
	Lima	84.0	-	43.5	31.6
Ruby	Ruby	38.8	21.6	-	23.4
Madison	Hebgen Lake	377.5	288.3	249.5	201.5
	Ennis Lake	41.0	34.2	33.9	37.7
Gallatin	Middle Creek	8.0	3.6	4.2	3.3
Missouri	Canyon Ferry	2,043.0	1,773.0	1,543.0	1,639.0
	Hauser & Helena	61.9	63.0	63.6	58.0
	Lake Helena	10.4	10.9	11.1	9.2
	Holter Lake	81.9	78.6	79.9	61.8
	Smith River	10.6	-	-	5.8
	Bair	7.0	-	-	4.2
	Martinsdale	23.1	-	-	7.5
	Deadman's Basin	72.2	-	-	43.6
	Fort Peck Lake	19,140.0	17,540.0	15,970.0	13,220.0
Sun	Gibson	99.0	67.9	58.7	39.1
	Willow Creek	32.2	27.6	-	18.9
	Pishkun	32.0	17.6	-	17.5
Marias	Lower Two Medicine	11.9	-	-	-
	Four Horns	19.2	-	-	-
	Swift	30.0	21.9	9.0	16.2
	Lake Frances	111.9	93.3	30.7	78.0
	Tiber	1,347.0	581.3	497.2	577.1
Milk	Beaver Creek	3.5	1.3	1.5	-
	Fresno	127.2	105.6	83.1	56.2
	Nelson	66.8	50.6	47.9	42.6
	Lake Sherburne	66.2	30.2	16.9	18.5
Yellowstone	Mystic Lake	21.0	7.2	7.7	10.9
	Tongue River	68.0	-	29.1	27.8
	Cooney	27.4	12.0	12.2	13.8
Bighorn	Bighorn Lake	1,356.0	868.4	826.5	792.5





# STREAMFLOW FORECASTS

STREAMFLOW FORECASTS	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
BASIN, STREAM and/or FORECAST POINT					

## COLUMBIA RIVER BASIN

KOOTENAI RIVER					
Libby (near) (2)	7,150	96	Apr-Sept	6,388	7,456
Below Libby Dam	6,150	96	Apr-July	5,292	6,417
	4,800	96	Apr-June	3,890	5,011
FISHER RIVER					
Libby (near)	285	100	Apr-Sept		286
	270	100	Apr-July		269
YAAK RIVER					
Troy (near)	570	101	Apr-Sept		568
	550	101	Apr-July		544
KOOTENAI RIVER					
Leonia (at) (2)	8,900	98	Apr-Sept	8,093	9,073
	7,800	98	Apr-July	6,846	7,957
	6,300	98	Apr-June	5,298	6,431
FLINT CREEK					
Boulder Creek (below) (3)	91.0	127	Apr-Sept		71.6
	75.0	134	Apr-July		56.1
MIDDLE FORK ROCK CREEK					
Philipsburg (near)	93.0	123	Apr-Sept		75.9
	85.0	124	Apr-July		68.6
NEVADA CREEK					
Finn (near)	29.0	134	Apr-Sept		21.6
	27.5	137	Apr-July		20.1
BLACKFOOT RIVER					
Bonner (near)	1,300	126	Apr-Sept	1,371	1,031
	1,200	128	Apr-July	1,227	934
	1,040	128	Apr-June	974	814
CLARK FORK RIVER					
Milltown (above) (4)	1,000	126	Apr-Sept	1,352	792
	900	130	Apr-July	1,133	690
	760	129	Apr-June	858	590
CLARK FORK RIVER					
Missoula (above)	2,300	126	Apr-Sept	2,722	1,823
	2,100	129	Apr-July	2,360	1,624
	1,800	128	Apr-June	1,832	1,404

(2) Adjusted for storage in Lake Koocanusa.

(3) Sum Flint Creek at Maxville and Boulder Creek at Maxville.

(4) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
WEST FORK BITTERROOT RIVER					
Conner (near) (5)	230	134	Apr-Sept		172
	210	135	Apr-July		156
BITTERROOT RIVER					
Darby (near)	750	128	Apr-Sept	736	584
	700	129	Apr-July	662	542
	620	129	Apr-June	502	479
SKALKAHO CREEK					
Hamilton (near)	67.5	119	Apr-Sept		56.6
	60.0	121	Apr-July		49.6
BURNT FORK CREEK					
Stevensville (near) (10)	43.0	122	Apr-Sept		35.3
	37.5	121	Apr-July		31.0
BITTERROOT RIVER					
Missoula (at) (6)	1,880	123	Apr-Sept		1,527
	1,750	124	Apr-July		1,412
	1,530	124	Apr-June		1,236
CLARK FORK RIVER					
Missoula (below)	4,180	125	Apr-Sept		3,350
	3,850	127	Apr-July		3,036
	3,330	126	Apr-June		2,640
CLARK FORK RIVER					
St. Regis (at)	5,300	118	Apr-Sept	5,750	4,507
	4,850	119	Apr-July	5,035	4,087
	4,200	118	Apr-June	3,805	3,563
NORTH FORK FLATHEAD RIVER					
Columbia Falls (near)	1,820	91	Apr-Sept		1,991
	1,660	92	Apr-July		1,813
	1,420	92	Apr-June		1,551
MIDDLE FORK FLATHEAD RIVER					
West Glacier (near)	1,700	89	Apr-Sept	2,330	1,917
	1,600	90	Apr-July	2,136	1,768
	1,350	89	Apr-June	1,687	1,514
SOUTH FORK FLATHEAD RIVER					
Columbia Falls (near) (7)	2,200	92	Apr-Sept	2,520	2,378
	2,050	92	Apr-July	2,338	2,240
	1,800	91	Apr-June	1,856	1,984

(5) Adjusted for storage in Painted Rocks Reservoir.

(6) Difference in observed flow Clark Fork above and below Missoula.

(7) Adjusted for storage in Hungry Horse Reservoir.

(10) Adjusted for diversion into Sunset Highline Canal.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
FLATHEAD RIVER					
Columbia Falls (at) (7)	5,850	91	Apr-Sept	6,794	6,421
	5,450	92	Apr-July	6,346	5,942
	4,750	92	Apr-June	5,041	5,151
SWAN RIVER					
Big Fork (near)	730	102	Apr-Sept		717
	650	103	Apr-July		630
FLATHEAD RIVER					
Polson (near) (8)	7,050	92	Apr-Sept	7,895	7,648
	6,580	93	Apr-July	7,142	7,082
	5,600	92	Apr-June	5,631	6,113
CLARK FORK RIVER					
Plains (near) (8)	13,000	103	Apr-Sept	14,101	12,601
	11,830	103	Apr-July	12,542	11,523
	10,100	102	Apr-June	9,669	9,934
THOMPSON RIVER					
Thompson Falls (near)	275	99	Apr-Sept		277
	250	101	Apr-July		248
PROSPECT CREEK					
Thompson Falls (at)	145	99	Apr-Sept		147
	135	99	Apr-July		137
CLARK FORK RIVER					
Whitehorse Rapids (at) (9)	14,400	102	Apr-Sept		14,336
	13,200	103	Apr-July		13,086
	11,300	102	Apr-June		11,325

- (7) Adjusted for storage in Hungry Horse Reservoir.  
 (8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.  
 (9) Adjusted for storage in Hungry Horse, Flathead Lake, and Noxon Rapids Reservoirs.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average

## MISSOURI RIVER BASIN

BEAVERHEAD RIVER					
Grant (near) (11) (12)	167	115	Apr-Sept	295	145
	150	118	Apr-July	248	127
RUBY RIVER					
Alder (near)	110	117	Apr-Sept		93.9
	95.0	120	Apr-July		79.4
BIG HOLE RIVER					
Melrose (near)	950	127	Apr-Sept		748
	880	127	Apr-July		694
BIRCH CREEK					
Glen (near)	17.3	126	Apr-Sept		13.7
	14.5	126	Apr-July		11.5
BOULDER RIVER					
Boulder (near)	110	123	Apr-Sept	184	89.5
	105	123	Apr-July	170	85.3
WILLOW CREEK					
Harrison (near)	25.5	135	Apr-Sept		18.9
	23.0	135	Apr-July		17.1
MADISON RIVER					
Grayling (near) (13)	560	117	Apr-Sept	529	480
	450	123	Apr-July	410	374
MADISON RIVER					
McAllister (near) (14)	980	118	Apr-Sept	998	828
	800	123	Apr-July	792	652
GALLATIN RIVER					
Gateway (near)	630	119	Apr-Sept		531
	550	122	Apr-July		451

- (11) Adjusted for storage in Lima Reservoir.  
 (12) Adjusted for storage in Clark Canyon Reservoir.  
 (13) Adjusted for storage in Hebgen Lake.  
 (14) Adjusted for storage in Hebgen and Ennis Lakes.





# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
HYALITE CREEK					
Bozeman (near) (15)	51.0	115	Apr-Sept		44.2
	45.0	118	Apr-July		38.2
GALLATIN RIVER					
Logan (at)	750	131	Apr-Sept		573
	650	133	Apr-July		487
MISSOURI RIVER					
Toston (at) (16)	3,160	130	Apr-Sept	3,875	2,432
	2,780	132	Apr-July	3,280	2,109
SHEEP CREEK					
White Sulphur Springs (near)	22.0	107	Apr-Sept		20.6
	19.0	106	Apr-July		18.0
SUN RIVER					
Gibson Dam (at) (17)	545	92	Apr-Sept	829	590
	500	92	Apr-July	764	541
BELT CREEK					
Monarch (near)	150	122	Apr-Sept		123
	140	124	Apr-July		113
MISSOURI RIVER					
Fort Benton (at) (18)	4,400	119	Apr-Sept		3,690
	3,780	121	Apr-July		3,123
TWO MEDICINE CREEK					
Browning (near) (19)	220	87	Apr-Sept		253
	210	88	Apr-July		240
BADGER CREEK					
Browning (near)	116	89	Apr-Sept		130
	100	88	Apr-July		113
MARIAS RIVER					
Shelby (near) (20)	500	89	Apr-Sept	1,216	599
	470	87	Apr-July	1,138	538

- (15) Adjusted for storage in Middle Creek Reservoir.
- (16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.
- (17) Adjusted for storage in Gibson Reservoir and diversions.
- (18) Adjusted for storage in Canyon Ferry Reservoir.
- (19) Adjusted for storage in Two Medicine Reservoir and diversions into Two Medicine Canal.
- (20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances, and Swift Reservoirs.



# STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average
MISSOURI RIVER					
Virgelle (at) (21)	5,100	117	Apr-Sept	4,342	
	4,400	118	Apr-July	3,742	
SOUTH FORK JUDITH RIVER					
Utica (near)	15.0	101	Apr-Sept	14.9	
	14.0	102	Apr-July	13.7	
MISSOURI RIVER					
Landusky (near) (21)	5,450	115	Apr-Sept	4,739	
	4,800	118	Apr-July	4,068	
NORTH FORK MUSSELSHELL RIVER					
Delpine (near)	7.0	113	Apr-Sept	6.2	
	6.0	111	Apr-July	5.4	
SOUTH FORK MUSSELSHELL RIVER					
Martinsdale (above)	58.0	116	Apr-Sept	50.1	
	54.0	114	Apr-July	47.3	
MISSOURI RIVER					
Fort Peck Dam (below) (22)	5,400	117	Apr-Sept	4,598	
	4,800	118	Apr-July	4,069	
MILK RIVER					
Eastern Crossing (at)	235	82	Mar-Sept	286	
MISSOURI RIVER					
Wolf Point (near) (22)	5,800	118	Apr-Sept	4,898	
	5,150	118	Apr-July	4,361	
MISSOURI RIVER					
Williston, N.D. (Near) (29)	14,800	126	Apr-Sept	11,778	
	13,300	127	Apr-July	10,437	

## SASKATCHEWAN RIVER BASIN

ST. MAYR RIVER					
Babb (near) (30)	475	97	Apr-Sept	489	
	410	97	Apr-July	421	

- (21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.
- (22) Adjusted for storage in Canyon Ferry, Tiber, and Fort Peck Reservoirs.
- (29) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill, Boysen, and Yellowtail Reservoirs. Sum Yellowstone River near Sidney and Missouri River near Culbertson.
- (30) Adjusted for storage in Lake Sherburne.



# STREAMFLOW FORECASTS

BASIN, STREAM and or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average

## YELLOWSTONE RIVER BASIN

YELLOWSTONE RIVER					
Corwin Springs (at)	2,600	130	Apr-Sept	2,159	1,996
	2,200	132	Apr-July	1,741	1,662
YELLOWSTONE RIVER					
Livingston (near)	3,050	132	Apr-Sept		2,317
	2,580	134	Apr-July		1,926
BOULDER RIVER					
Big Timber (at)	530	140	Apr-Sept		379
	500	143	Apr-July		350
STILLWATER RIVER					
Absarokee (near) (25)	780	132	Apr-Sept		591
	680	138	Apr-July		494
CLARKS FORK RIVER					
Belfry (near)	840	138	Apr-Sept		607
	750	137	Apr-July		546
ROCK CREEK					
Red Lodge (near)	147	134	Apr-Sept	140	110
	120	143	Apr-July	111	84.0
YELLOWSTONE RIVER					
Billings (at)	5,900	139	Apr-Sept	6,472	4,246
	5,130	142	Apr-July	5,608	3,613
BIGHORN RIVER					
St. Xavier (near) (26)	2,150	116	Apr-Sept	2,497	1,849
	2,000	117	Apr-July	2,366	1,706
LITTLE BIGHORN RIVER					
Lodgegrass (near) (28)	170	116	Apr-Sept		146
	150	116	Apr-July		129
YELLOWSTONE RIVER					
Miles City (at) (27)	8,200	129	Apr-Sept		6,378
	7,400	133	Apr-July		5,555
YELLOWSTONE RIVER					
Sidney (near) (27)	8,900	134	Apr-Sept		6,665
	8,000	136	Apr-July		5,895

(25) Adjusted for storage in Mystic Lake.

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake, and Yellowtail Reservoirs.

(27) Adjusted for storage in Buffalo Bill, Boysen, and Yellowtail Reservoirs.

(28) Sum Little Bighorn below Pass Creek and Lodgegrass Creek near Wyola.





# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
ARCH FALLS	7350	1/29	37	12.3	11.2	8.7
BADGER PASS	6900	1/30	90	31.5A	24.0	30.3
BANFIELD MOUNTAIN	5600	1/29	46	15.8	-	19.1
BANFIELD MOUNTAIN PILLOW	5600	1/29	SP	14.3	15.0	16.0
BATTLE RIDGE	6020	1/26	21	6.7	5.8	6.5
BEAR PAW SKI AREA	5200	1/26	13	3.5	4.6	4.7
BIG SKY	7700	1/28	43	13.2	10.7	-
BIG SPRINGS (ID)	6500	1/29	50	15.3	10.5	14.4
BLACK BEAR	7950	1/30	90	34.0	20.7	-
BLACK BEAR PILLOW	7950	1/30	SP	28.8	19.1	-
BLACK PINE	7100	1/28	40	12.4	9.9	7.6
BLACK PINE PILLOW	7100	1/28	SP	14.6	10.4	9.4
BLUE LAKE	5900	1/30	52	17.5A	15.5	20.0
BOW RIVER #1 (AL)	5100	1/29	29	7.0	6.3	6.5
BOXELDER CREEK	5100	1/26	22	3.8	-	-
BRIDGER BOWL	7250	1/26	72	23.7	15.6	20.4
BRIDGER BOWL PILLOW	7250	1/26	SP	22.6	14.8	18.9
BRISTOW CREEK	3900	1/29	18	5.6	-	-
BULL MOUNTAIN	6600	2/02	18	4.4	4.9	-
CAMP CREEK (ID)	6800	1/30	24	6.3	5.7	7.4
CANYON (WY)	7750	2/01	46	13.8	8.6	10.7
CARROT BASIN	9000	1/30	75	28.1	23.2	27.9
CARROT BASIN PILLOW	9000	1/30	SP	21.2	14.2	19.9
CARTER CREEK	7400	2/01	19	4.7	3.9	3.5
CEDAR GROVE	4100	1/28	23	7.3	-	-
CHESSMAN RESERVOIR	6200	1/29	6	1.5	3.3	2.5
COLE CREEK	7850	2/02	46	13.4	16.4	-
COLE CREEK PILLOW	7850	1/27	SP	31.2	13.9	-
COLLEY CREEK	6300	1/30	30	8.0	-	-
COMBINATION PILLOW	5600	1/28	SP	4.6	4.7	-
COOKE STATION	8150	1/27	61	20.0	13.6	-
COPPER MOUNTAIN	7700	1/27	39	11.6	9.0	8.0
COYOTE HILL	4200	2/02	30	8.8	9.4	8.3
DALY CREEK	5780	1/30	34	9.4	9.4	-
DAVIS CREEK	5400	1/27	44	15.8	-	-
DEADMAN CREEK	6450	1/28	30	9.2	9.4	8.1
DEADMAN CREEK PILLOW	6450	1/28	SP	7.5	8.7	8.1
DESERT MOUNTAIN	5600	1/30	31	9.4	9.1	11.9
DEVILS SLIDE	8100	1/29	58	19.1	18.2	15.3
DISCOVERY BASIN	7050	1/28	33	9.2	8.9	-
DIX HILL	6400	2/01	29	9.0	7.0	-
EMERY CREEK	4350	1/30	32	9.1	-	-
FISHER CREEK	9100	1/27	93	33.0	19.3	24.8
FLEECER RIDGE	7500	2/02	39	11.8	8.4	-
FROHNER MEADOWS	6480	1/30	23	6.4	6.5	-
FROHNER MEADOWS PILLOW	6480	1/30	SP	4.0	6.6	-
GARVER CREEK	4250	1/27	17	4.7	-	9.9
GARVER CREEK PILLOW	4250	1/27	SP	5.1	7.5	8.6



## SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
GIBBONS PASS	7100	1/28	60	20.6	17.6	16.0
GRAVE CREEK	4300	1/28	36	10.3	-	-
GRAVE CREEK PILLOW	4300	1/26	0	10.3	-	-
GRIZZLY PEAK	8400	2/02	42	13.0	14.8	11.6
HAWKINS LAKE	6450	1/27	67	25.4	-	23.2
HAWKINS LAKE PILLOW	6450	1/27	SP	22.6	21.3	21.6
HERGEN DAM	6550	1/26	34	11.4	8.3	8.2
HELL ROARING DIVIDE	5770	2/02	59	21.0	25.4	23.3
HOLBROOK	4530	1/30	35	8.5A	9.0	8.0
HOOD MEADOW	6600	1/29	34	9.8	9.8	7.9
HOODOO BASIN PILLOW	6000	2/01	SP	35.4	32.4	36.1
INTERGAARD	6450	1/28	32	10.0	5.9	6.0
ISLAND PARK (ID)	6310	1/29	44	12.9	9.2	11.6
KILGORE (ID)	6200	1/28	28	7.9	10.9	7.9
KINGS HILL	7500	1/28	37	11.6	-	-
KIWANIS CAMP	3720	1/26	0	.0	2.1	-
LAKE CAMP (WY)	7850	1/28	34	8.8	4.9	6.0
LAKE CREEK	6100	2/02	26	7.2	6.5	4.9
LAKEVIEW CANYON	6930	1/30	30	8.2	6.4	9.8
LAKEVIEW RIDGE	7400	1/30	26	7.6	5.4	8.8
LEMHI PASS	7480	2/03	30	9.3	-	-
LEMHI RIDGE	8100	2/03	36	11.4	-	-
LEMHI RIDGE PILLOW	8100	2/03	0	10.9	-	-
LICK CREEK	6860	1/29	33	9.3	8.6	6.8
LICK CREEK PILLOW	6860	1/29	SP	8.6	7.6	6.1
LOLO PASS (ID)	5230	1/29	76	24.7	22.4	22.9
LONE MOUNTAIN	8880	1/28	51	16.6	16.4	-
LOOKOUT (ID)	5250	1/30	71	23.4	27.2	26.7
LOST SOUL	4800	1/29	32	9.0	-	-
LUBRECHT FLUME	4800	1/29	21	6.3	5.5	5.6
LUBRECHT FOREST # 3	5450	1/29	21	5.9	8.4	5.6
LUBRECHT FOREST # 4	4650	1/29	7	1.8	5.1	3.2
LUBRECHT FOREST # 6	4040	2/03	8	2.2	4.8	3.8
LUBRECHT HYDROPLOT	4200	1/29	17	6.0	5.0	5.1
LUPINE CREEK (WY)	7300	1/30	34	9.2	5.5	7.7
MADISON PLATEAU	7750	1/30	56	19.6	11.1	15.4
MADISON PLATEAU PILLOW	7750	1/30	SP	19.5	12.5	16.6
MARIAS PASS	5250	1/28	31	9.9	11.1	13.2
MAYNARD CREEK	6210	1/26	38	11.8	9.3	13.7
MAYNARD CREEK PILLOW	6210	1/26	SP	7.3	7.4	8.8
MEADOW CREEK PILLOW	4000	1/20	SP	3.4	7.2	-
MILL CREEK	7500	1/30	43	12.9	-	-
MIRROR LAKE #6 (AL)	6600	1/29	37	11.2	7.2	8.4
MOOSE CREEK (ID)	6200	2/03	41	14.1	16.9	11.8
MOUNT LOCKHART	6400	2/01	56	19.6	14.4	-
MOUNT LOCKHART PILLOW	6400	2/01	SP	15.8	-	15.6
MT. EISENHOWER #10 (AL)	5000	1/30	19	4.1	3.8	4.1
NEW WORLD	6900	1/26	53	15.0	12.6	10.2
NEZ PERCE CREEK	6500	1/27	24	6.3	5.4	5.4
NOISY BASIN	6040	1/29	81	27.9	31.0	-





# SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
					Last Year	Average
NAME	Elevation					
NOISY BASIN PILLOW	6040	1/29	SP	25.5	25.3	-
NOISY CREEK	3600	1/29	8	2.4	4.4	-
NORRIS BASIN (WY)	7500	1/31	36	10.7	7.0	8.0
NORTH FK. ELK CREEK	6250	1/31	38	11.2	10.0	8.6
NORTH FK. ELK CREEK PILL	6250	1/31	SP	11.2	9.8	8.4
NORTHEAST ENTRANCE	7400	1/27	36	10.3	7.8	6.6
NORTHEAST ENTRANCE PILL.	7400	1/27	SP	9.8	7.1	7.0
OLD FAITHFUL (WY)	7360	1/29	41	13.2	-	-
OPHIR PARK	7150	2/01	48	16.8	12.2	-
PETERSON MEADOWS	7200	1/28	37	11.1	6.3	-
PETERSON MEADOWS PILLOW	7200	1/28	SP	11.2	7.0	-
PICKET PIN LOWER	6200	2/02	10	2.4	3.6	-
PICKET PIN MIDDLE	7250	2/01	42	15.0	13.4	-
PICKET PIN UPPER	8100	2/01	53	20.4	17.4	-
PICNIC GROUNDS	6200	1/28	14	3.6	3.4	3.0
PIPESTONE PASS	7200	1/27	22	6.4	4.7	3.8
PIPESTONE UPPER #2 (AL)	5300	1/30	28	6.6	5.7	6.3
POORMAN CREEK	5100	1/28	57	20.7	-	26.8
POORMAN CREEK PILLOW	5100	1/28	SP	17.9	23.3	22.8
ROCK CREEK MEADOWS	8160	1/29	62	19.1	-	-
ROCKER PEAK	8000	1/29	48	15.9	10.6	11.1
ROCKER PEAK PILLOW	8000	1/29	SP	14.9	10.3	11.4
ROCKY BOY	4700	1/26	8	2.7	3.0	3.4
ROCKY BOY PILLOW	4700	1/26	SP	3.4	2.4	3.8
SADDLE MOUNTAIN	7940	1/28	68	22.2	19.8	18.4
SADDLE MOUNTAIN PILLOW	7940	1/28	SP	23.0	21.3	19.1
SAWTELL MOUNTAIN (ID)	8710	1/29	64	22.2	12.9	26.1
SHOWER FALLS	8100	1/29	62	21.1	19.4	16.6
SHOWER FALLS PILLOW	8100	1/29	SP	20.4	19.1	16.7
SPOTTED BEAR MOUNTAIN	7000	1/30	44	11.0A	13.5	11.4
SPUR PARK	8000	1/28	51	17.0	15.8	16.7
SPUR PARK PILLOW	8100	1/28	SP	17.2	15.8	16.4
STAHL PEAK	6050	1/26	85	28.8	-	-
STAHL PEAK PILLOW	6050	1/26	0	23.8	-	-
STORM LAKE	7780	1/28	46	13.8	8.1	9.5
STUART MILL	6500	1/28	21	5.8	5.0	4.8
SUCKER CREEK	3960	1/23	0	.0	.0	-
SYLVAN PASS (WY)	7100	2/01	46	14.7	8.4	9.4
TARGHEE PASS (ID)	7000	1/29	39	11.1	6.9	12.0
TAYLOR ROAD	4080	1/23	4	1.2	2.9	-
TEN MILE LOWER	6600	1/29	19	5.2	5.8	5.4
TEN MILE MIDDLE	6800	1/28	40	11.3	9.0	8.2
TEN MILE UPPER	8000	1/28	44	12.7	9.2	10.1
TEPEE CREEK	8000	2/02	40	12.6	12.0	11.7
TEPEE CREEK PILLOW	8000	2/02	SP	10.3	8.4	-
THUMB DIVIDE (WY)	7900	1/29	47	15.4	8.3	15.4
TRAIL CREEK	7090	2/03	29	8.0	-	-
TV MOUNTAIN	6800	2/02	49	14.9	12.8	13.2
TWELVEMILE CREEK	5600	1/29	55	17.3	18.8	15.6
TWELVEMILE CREEK PILLOW	5600	1/29	SP	15.5	15.9	13.4



# SNOW

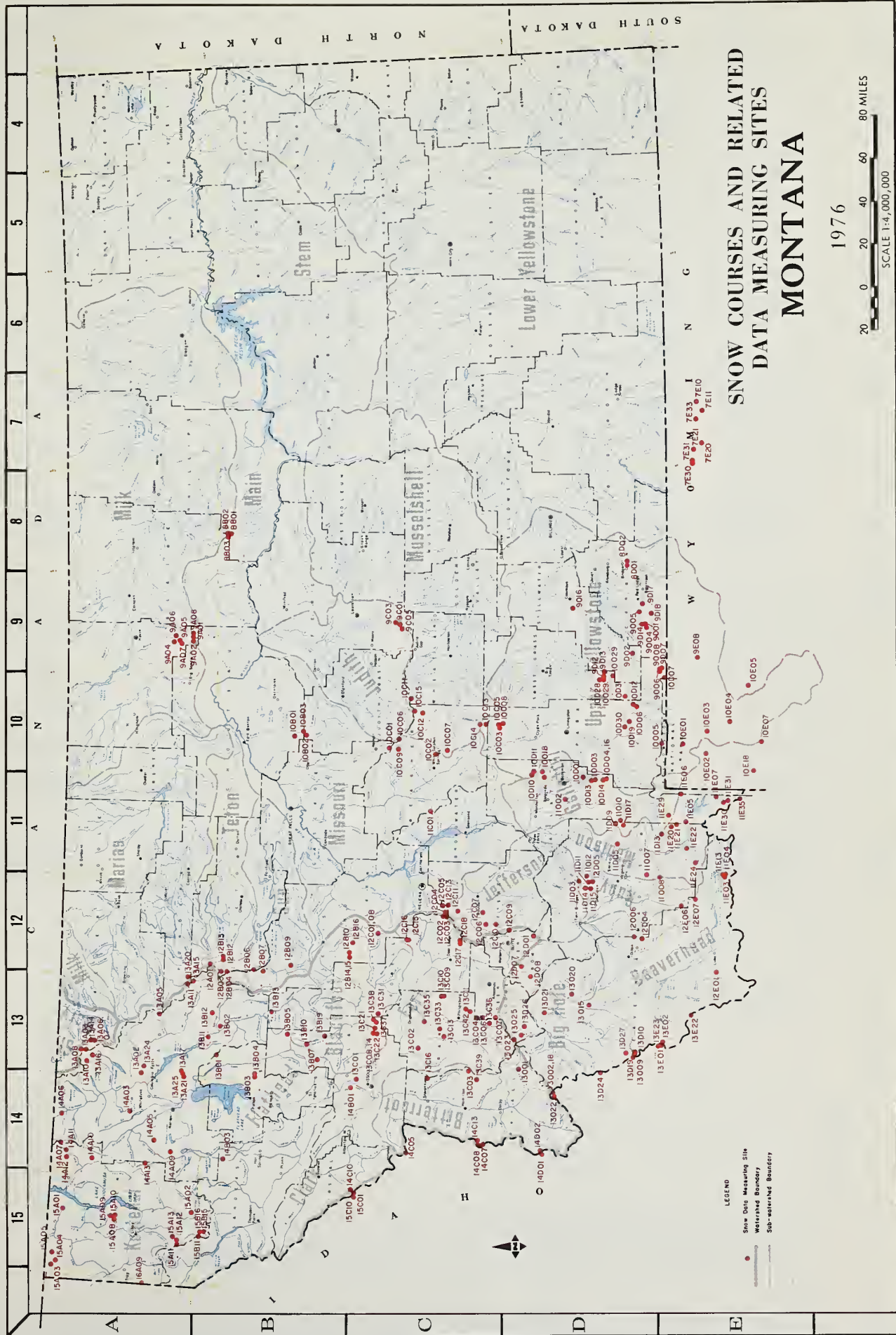
DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
TWENTY-ONE MILE	7150	1/29	47	15.5	10.4	12.7
TWIN CREEKS	3580	1/30	26	7.5A	10.5	9.8
VALLEY VIEW (ID)	6500	1/29	40	12.0	7.7	12.3
WALDRON	5600	2/01	21	6.4	.6	-
WALDRON PILLOW	5600	2/01	SP	6.2	7.4	9.9
WEASEL DIVIDE	5450	1/26	69	24.2	-	-
WEST ROSEBUD	7500	1/21	38	12.0	-	7.1
WEST YELLOWSTONE	6700	1/29	35	11.1	5.9	8.2
WEST YELLOWSTONE PILLOW	6700	1/30	SP	8.3	4.3	6.6
WHISKEY CREEK	6800	1/30	52	17.7	11.2	-
WHISKEY CREEK PILLOW	6800	1/30	SP	14.7	9.4	-
WHITE ELEPHANT (ID)	7700	1/29	54	18.6	10.0	-
WHITE MILL	8700	1/27	76	27.0	17.2	-
WHITE MILL PILLOW	8700	1/27	SP	22.5	15.3	-
WILLOW CREEK	6500	2/02	30	8.1	7.6	-
WOLVERINE (WY)	7650	2/01	45	14.7	10.2	-

## LATE ARRIVING DATA

BIG COULEE	5100	2/05	15	4.1	4.1	-
HIGHWOOD DIVIDE	5650	2/05	28	7.6	6.5	-
HIGHWOOD STATION	4600	2/05	9	2.5	3.2	-









# Agencies and Organizations Cooperating in Montana Snow Surveys

## GOVERNMENT AGENCIES

### Canada:

Water Survey of Canada, Calgary, Department of the  
Environment

Water Resources Service, Department of Lands, Forests  
and Water Resources, British Columbia

### Federal:

Department of the Army

Corps of Engineers

U.S. Department of Agriculture

Forest Service

Soil Conservation Service

U.S. Department of Commerce

NOAA, National Weather Service

U.S. Department of the Interior

Bonneville Power Administration

Bureau of Indian Affairs

Bureau of Reclamation

Fish and Wildlife Service

Geological Survey

National Park Service

## STATE

Montana Association of Conservation Districts

Montana Department of Fish and Game

Montana Department of Natural Resources and  
Conservation

Montana State University - Agricultural Experiment  
Station

University of Montana - School of Forestry

## PRIVATE

Montana Power Company

Other organizations and individuals furnish valuable  
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is gratefully acknowledged.



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